

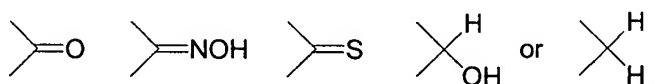
In the specification:

1. Please delete the original paragraph beginning on page 11, line 20 and ending at line 23, and replace it with the following rewritten paragraph:

In the above generalized formula (L), $(T)_x A$ represents a substituted or unsubstituted aromatic 6-membered ring or heteroaromatic 5 - 6 membered ring containing 1 - 2 atoms of N, O, or S. T represents one or more substituent groups, the subscript x represents the number of such substituent groups, and A represents the aromatic or heteroaromatic ring.

2. Please delete the paragraph beginning on page 12, line 1 and ending on page 12, line 3.
3. Please replace the original paragraph beginning on page 12, line 8 and ending on page 12, line 10 with the following rewritten paragraph:

In the generalized formula (L), D represents



4. Please replace the original paragraph beginning on page 12, line 20 and ending on page 12, line 21 with the following rewritten paragraph:

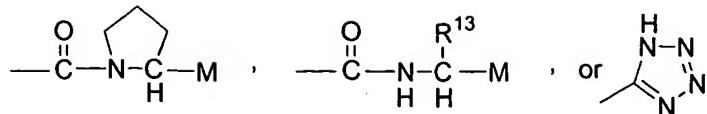
Each group R^6 is alkyl, alkenyl, alkynyl, heteroaryl, non-aromatic cyclic, and combinations thereof optionally substituted with one or more heteroatoms.

5. Please replace the paragraph beginning on page 13, line 1, and ending on page 13, line 2 with the following rewritten paragraph:

In the generalized formula (L), E preferably represents a linear or cyclic alkyl moiety substituted with a mono- or bi-heterocyclic ring structure.

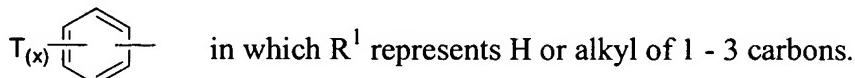
6. Please replace the paragraph beginning on page 13, line 3 and ending on page 13, line 7 with the following rewritten paragraph:

In the generalized formula (L), G represents $-PO_3H_2$, $-M$,



in which M represents $\text{-CO}_2\text{H}$, $\text{-CON(R}^{11}\text{)}_2$ wherein R¹¹ is H or simple alkyl, or $\text{-CO}_2\text{R}^{12}$ wherein R¹² is lower alkyl, and R¹³ represents any of the side chains of the 19 noncyclic naturally occurring amino acids.

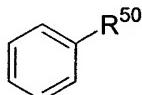
7. Please replace the chemical structure at page 14, line 12 with the following rewritten structure and accompanying text:



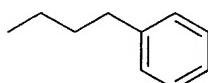
8. Please delete the paragraph beginning at page 14, line 13 and ending at page 15, line 3.

9. Please delete original page 15 and replace it with the following rewritten page 15:

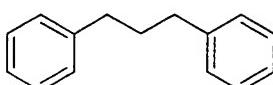
Throughout this application, in the displayed chemical structures, an open bond indicates the point at which the structure joins to another group. For example,



where R⁵⁰ is



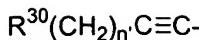
is the structure



In the above structures for $(T)_x A$, the aromatic ring is referred to as the A ring or A unit, and T represents a substituent group, referred to as a T group or T unit. x is preferably 1.

10. Please delete original page 16 and replace it with the following rewritten page 16:

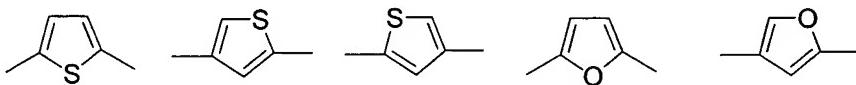
The substituent group T can be an acetylene containing moiety with the general formula:



where n' is 1-4 and R³⁰ is selected from the group consisting of: HO-, MeO-, N(n-Pr)₂-, CH₃CO₂-, CH₃CH₂OCO₂-, HO₂C-, OHC-, Ph-, 3-HO-Ph-, and PhCH₂O-, provided that when R³⁰ is Ph or 3-HO-Ph, n' = 0.

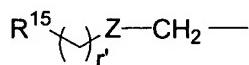
The B ring of generalized formula (L) is a substituted or unsubstituted aromatic or heteroaromatic ring, in which any substituents are groups which do not cause the molecule to fail to fit the active site of the target enzyme, or disrupt the relative conformations of the A and B rings, such that they would be detrimental. Such substituents may be moieties such as lower alkyl, lower alkoxy, CN, NO₂, halogen, etc., but are not to be limited to such groups.

In the generalized formula (L), B represents an aromatic or heteroaromatic ring selected from the group consisting of:



11. Please delete the paragraph starting on page 17, line 7 and ending on page 17, line 13 and replace it with the following rewritten paragraph:

In an alternative embodiment, compounds of the general formula (L) include those in which the combination (T)_x-A-B has the structure:



where Z may be (CH₂)_e-C₆H₄-(CH₂)_f or (CH₂)_g, e = 0-8, f = 0-5 and g = 0-14, r' is 0-6. R¹⁵ may be a straight, or cyclic alkyl group of 6-12 carbon atoms, preferably of 7-11 carbon atoms, and optionally may bear one or more pharmaceutically acceptable substituents which are discussed more fully below.

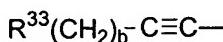
12. Please delete the paragraph beginning on page 17, line 14 and ending on page 17, line 17 and replace it with the following rewritten paragraph:

R¹⁵ may also be a polyether of the formula R³²O(C₂H₄O)_h in which the subscript "h" is 1 or 2, and the group R³² is a straight, branched or cyclic alkyl group of 1-5 carbon atoms,

preferably of 1-3 carbon atoms and straight, or phenyl, or benzyl. R³² optionally may bear one or more pharmaceutically-acceptable substituents.

13. Please delete original page 18 and replace it with the following rewritten page 18:

R^{15} may also be a substituted alkynyl group of the formula:



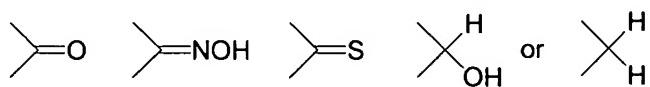
in which the subscript "b" is 1-10 and the group R^{33} is H-, HO- or $R^{34}O^-$ and the group is preferably the HO- group. R^{34} may be an alkyl group of 1-3 carbon atoms, or phenyl or benzyl. R^{33} optionally may bear one or more pharmaceutically-acceptable substituents.

R^{15} may also be H, Cl, MeO or

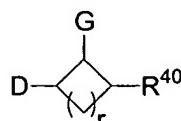


wherein n" is 0-4, R¹⁷ is C₂H₅, allyl, or benzyl.

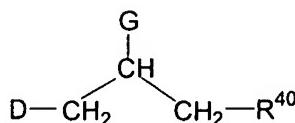
In the generalized formula (L), D represents the moieties:



In the generalized formula (L), E represents the moiety between D and G shown by the following formula:



wherein r is 0-2 and R⁴⁰ is a mono- or bi- heterocyclic structure. When r=0 the above structure takes the form



When r is 1 or 2, a cyclobutyl or cyclopentyl ring is formed, respectively. Each ring of the mono- or bi- heterocyclic structures comprise 5-7 membered rings substituted with 1-3 heteroatoms independently selected from N, S, and O; one or two carbons of the ring are optionally carbonyl carbons; any sulfur of the ring is optionally -S(O)- or -S(O)₂-; one or more ring members are optionally substituted with one or two methyl groups.

14. Please delete original page 19 and replace it with the following rewritten page 19:

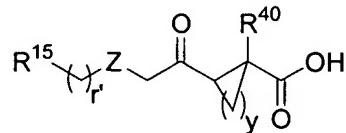
In addition, aryl or heteroaryl portions of any of the T or R⁶ groups optionally may bear up to two substituents such as -(CH₂)_yC(CR¹¹)(R¹²)OH, -(CH₂)_yOR¹¹, -(CH₂)_ySR¹¹, -(CH₂)_yS(O)R¹¹, -(CH₂)_yS(O)₂R¹¹, -(CH₂)_ySO₂N(R¹¹)₂, -(CH₂)_yN(R¹¹)₂, -(CH₂)_yN(R¹¹)COR¹², -OC(R¹¹)₂O- in which both oxygen atoms are connected to the aryl ring.

15. Please delete original page 21 and replace it with the following rewritten page 21:

It is to be understood that as used herein, the term "alkyl" means straight, branched, cyclic, and polycyclic materials. The term "haloalkyl" means partially or fully halogenated alkyl groups such as -(CH₂)₂C1, -CF₃ and -C₆F₁₃, for example.

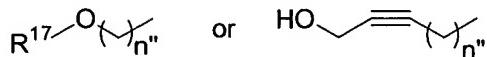
In the generalized formula (L), the A and B rings are preferably phenyl and phenylene, respectively, the A ring preferably bears at least one substituent group T preferably located on the position furthest from the position of the A ring which is connected to the B ring, the D unit is preferably a carbonyl group, and the G unit is preferably a carboxyl group.

Certain alternative embodiments include compounds having matrix metalloproteinase inhibitory activity and the following generalized formula:



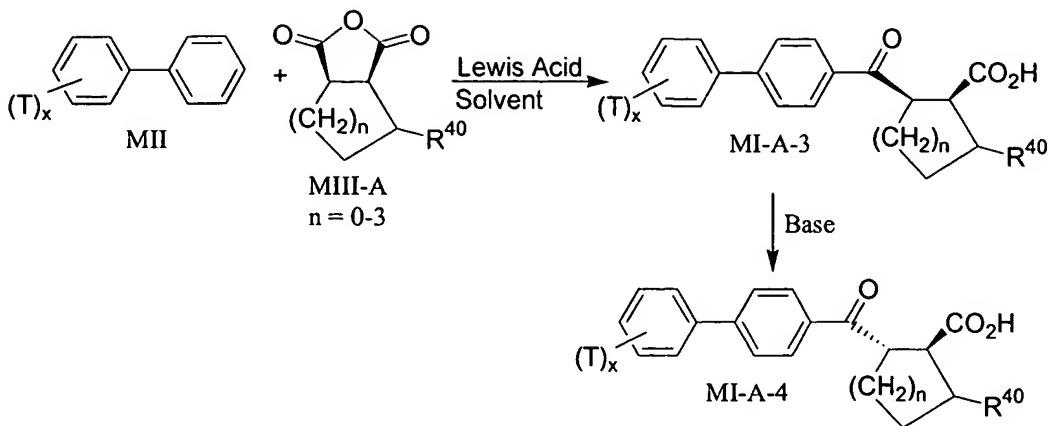
where Z = (CH₂)_e-C₆H₄-(CH₂)_f or (CH₂)_g, e = 0-8, f = 0-5, g = 0-14, r' is 0-6 and where y is 0, 2, or 3.

R¹⁵ may be H, Cl, MeO or



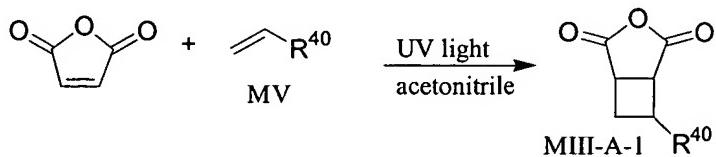
wherein n'' is 0-4, R¹⁷ is C₂H₅, allyl or benzyl, and R⁴⁰ is one of:

16. Please replace the original chemical equation beginning on page 28, line 10 and ending on page 28, line 17 with the following rewritten chemical equation:



17. Please delete the original paragraph beginning on page 28, line 18 and ending on page 29, line 9, and replace this paragraph and the accompanying chemical equation on page 29, lines 7-9 with the following rewritten material:

Method A is especially useful for the preparation of cyclic compounds such as MI-A-3, in which two R^6 groups are connected in a methylene chain to form a 3-7 member ring. Small ring (3-5 member) anhydrides are readily available only as cis isomers which yield cis invention compounds MI-A-3. The trans compounds MI-A-4 are then prepared by treatment of MI-A-3 with a base such as DBU in THF. The substituted four member ring starting material anhydrides such as MIII-A-1 are formed in a photochemical 2+2 reaction as shown below. This method is especially useful for the preparation of compounds in which R^{40} is acetoxy or acetoxymethylene. After the subsequent Friedel-Crafts reaction the acetate can be removed by basic hydrolysis and the carboxyl protected by conversion to 2-(trimethylsilyl)ethyl ester. The resultant intermediate with $R^{40} = \text{CH}_2\text{OH}$ can be converted to invention compounds with other R^{40} groups by using procedures described in General Method G.

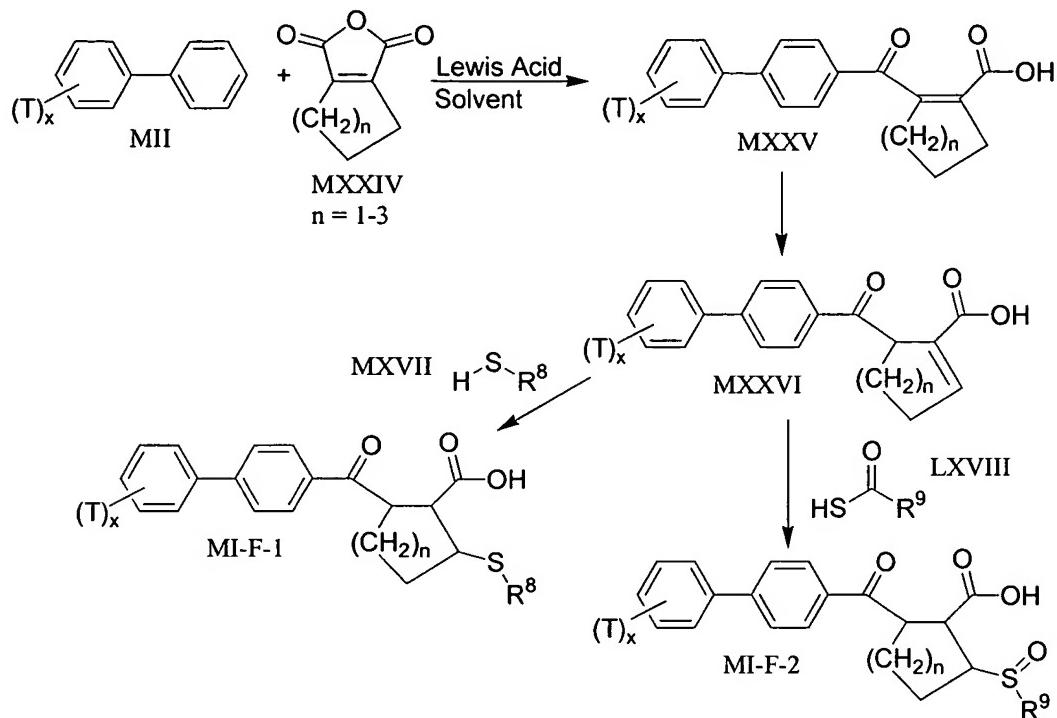


18. Please delete the original paragraph beginning on page 30, line 7 and ending on page 30, line 9 with the following rewritten paragraph:

Alternatively, a diester intermediate MIX, which contains $R^{12} = \text{allyl}$, can be exposed to

Pd catalysts in the presence of pyrrolidine to yield MI-B-2 ($R^{12} = H$) (Dezeil, Tetrahedron Lett. 28, 4371, 1990.

19. Please delete the original reaction scheme beginning on page 36, line 2 and ending on page 36, line 12 and replace it with the following rewritten reaction scheme:



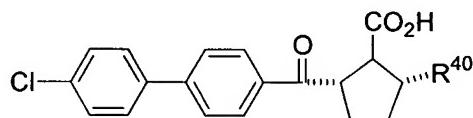
20. Please delete the original paragraph beginning on page 39, line 3 and ending on page 39, line 9 and replace it with the following rewritten paragraph:

General Method I - The compounds of this invention in which (T)_x is an alkynyl or substituted alkynyl are prepared according to general method I (Austin, J. Org. Chem. 46, 2280 (1981)). Intermediate MX is prepared according to methods A, B, C, D or G by starting with commercial MII ($T = Br$). Reaction of MX with substituted acetylene MXI in the presence of Cu(I) / palladate reagent gives invention compound MI-I-1. In certain cases, R³ may be an alcohol blocked as trialkylsilyl. In such cases the silyl group can be removed by treatment with acids such as trifluoroacetic acid or HF - pyridine reagent.

21. Please delete the original paragraph beginning on page 46, line 1 and ending on page 46, line 9 and replace it with the following rewritten paragraph:

Step 1. A solution of exo-oxobicyclo [2.2.1]heptane-7-carboxylic acid (prepared using the protocols described in Tetrahedron, 37, suppl., 411, 1981) (3.04g. 19.7 mmol) in CH₂Cl₂ (45 mL) was cooled to 0 °C and treated with 2-(trimethylsilyl) ethanol (2.7 mL, 18.6 mmol), EDC (3.94 g, 20.55 mmol) and DMAP (0.11 g, 0.9 mmol). After warming to room temperature and stirring for 2 hrs., the reaction mixture was quenched with water and diluted with CH₂Cl₂. After separating the layers, the organic phase was washed with satd. aq. NaCl, dried over MgSO₄ and concentrated. Purification by MPLC (0-25% EtOAc-hexanes) provided the target compound (3.9 g, 78%) as a colorless oil. ¹HNMR (CDCl₃) δ 4.18 (m, 2H), 2.88 (m, 2H), 2.76 (m, 1H), 2.05 (m, 4H), 1.50 (m, 2H), 0.99 (t, J = 8.4Hz, 2H), 0.99 (s, 9H).

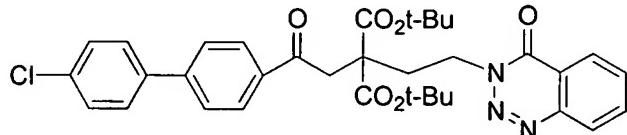
22. Please delete the original chemical structure shown on page 53, line 3 (first structure, between the title of the table and the table) and replace it with the following rewritten structure:



23. Please delete the first row of Table 1, page 53, line 4, and replace it with the following rewritten first row of column headings:

Example	R ⁴⁰	Isomer	Characterization
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24. Please delete the original chemical structure shown on page 59, line 15, and replace it with the following rewritten chemical structure:



25. Please delete the title and first row of the original table on page 67, beginning at line 9 and ending at line 10, and replace with the following rewritten title and row of column headings:

Table 2

Example	MMP-3 Fluorogenic	MMP-9 Fluorogenic	MMP-2 Fluorogenic
	IC₅₀ nM	IC₅₀ nM	IC₅₀ nM